UNITED NATIONS

GENERAL ASSEMBLY

Distr:
GENERAL

A/CN.9/360
17 February 1992

ORIGINAL: ENGLISH

UNITED NATIONS COMMISSION ON
INTERNATIONAL TRADE LAW
Twenty-fifth session
New York, 4-22 May 1992

REPORT OF THE WORKING GROUP ON INTERNATIONAL PAYMENTS ON THE WORK OF ITS TWENTY-FOURTH SESSION (Vienna, 27 January - 7 February 1992)

CONTENTS

	Paragraphs	Page
INTRODUCTION	1-17	3
I. PRELIMINARY REMARKS	18-21	7
II. POSSIBLE SCOPE AND FORM OF FUTURE WORK	22-31	8
III. POSSIBLE ISSUES OF FUTURE WORK	32-128	11
A. Requirement of a writing	32-43	11
1. Mandatory requirement of a writing	32-39	11
2. Contractual definition of a writing	40-43	12
B. Evidential value of EDI messages	44-59	14
1. Admissibility of EDI messages as evidence ..	44-52	14
2. Burden of proof	53-59	16

8653T V.92-51194

		Paragraphs	Page
C.	Requirement of an original	60-70	18
D.	Signature and other authentication	71-75	20
E.	Formation of contracts	76-95	21
1.	Expression of consent in an electronic environment	76-86	21
2.	Time and place of formation	87-89	24
3.	General conditions	90-95	25
F.	Liability for failure or error in communication	96-118	26
1.	Liability and risk of a party	97-103	26
2.	Liability of a third party providing communication services	104-118	28
G.	Documents of title and securities	119-124	31
H.	Communication	125	33
I.	Applicable law and related issues	126-128	33
IV.	RECOMMENDATION FOR FUTURE WORK	129-134	33

INTRODUCTION

1. The Commission, at its seventeenth session (1984), decided to place the subject of the legal implications of automatic data processing to the flow of international trade on its programme of work as a priority item. 1/ It did so after considering a report of the Secretary-General entitled "Legal aspects of automatic data processing" (A/CN.9/254), which identified several legal issues, relating to the legal value of computer records, the requirement of a writing, authentication, general conditions, liability and bills of lading. The decision of the Commission was made after taking note of a report of the Working Party on Facilitation of International Trade Procedures, which is jointly sponsored by the Economic Commission for Europe and the United Nations Conference on Trade and Development. The report suggested that, since the legal problems arising in this field were essentially those of international trade law, the Commission as the core legal body in the field of international trade law appeared to be the appropriate central forum to undertake and co-ordinate the necessary action. 2/

2. At its eighteenth session (1985), the Commission had before it a report by the Secretariat entitled "Legal value of computer records" (A/CN.9/265). That report came to the conclusion that, on a global level, there were fewer problems in the use of data stored in computers as evidence in litigation than might have been expected. It noted that a more serious legal obstacle to the use of computers and computer-to-computer telecommunications in international trade arose out of requirements that documents had to be signed or be in paper form. After discussion of the report, the Commission adopted a recommendation, the substantive provisions of which read as follows:

"The United Nations Commission on International Trade Law,

1. Recommends to Governments:

(a) to review the legal rules affecting the use of computer records as evidence in litigation in order to eliminate unnecessary obstacles to their admission, to be assured that the rules are consistent with developments in technology, and to provide appropriate means for a court to evaluate the credibility of the data contained in those records;

(b) to review legal requirements that certain trade transactions or trade related documents be in writing, whether the written form is a condition to the enforceability or to the validity of the transaction or document, with a view to permitting, where appropriate, the transaction or document to be recorded and transmitted in computer-readable form;

(c) to review legal requirements of a handwritten signature or other paper-based method of authentication on trade related documents with a view to permitting, where appropriate, the use of electronic means of authentication;

1/ Official Records of the General Assembly, Thirty-ninth Session, Supplement No. 17 (A/39/17), para. 136.

2/ "Legal aspects of automatic trade data interchange" (TRADE/WP.4/R.185/Rev.1). The report submitted to the Working Party is reproduced in A/CN.9/238, annex.

(d) to review legal requirements that documents for submission to governments be in writing and manually signed with a view to permitting, where appropriate, such documents to be submitted in computer-readable form to those administrative services which have acquired the necessary equipment and established the necessary procedures;

2. Recommends to international organizations elaborating legal texts related to trade to take account of the present Recommendation in adopting such texts and, where appropriate, to consider modifying existing legal texts in line with the present Recommendation." 3/

3. At its twenty-first session (1988), the Commission considered a proposal to examine the need to provide for the legal principles that would apply to the formation of international commercial contracts by electronic means. It was noted that there existed no refined legal structure for the important and rapidly growing field of formation of contracts by electronic means and that future work in that area could help to fill a legal vacuum and to reduce uncertainties and difficulties encountered in practice. The Commission requested the Secretariat to prepare a preliminary study on the topic. 4/

4. At its twenty-third session (1990), the Commission had before it a report entitled "Preliminary study of legal issues related to the formation of contracts by electronic means" (A/CN.9/333). The report summarized work that had been undertaken in the European Communities and in the United States of America on the requirement of a writing as well as on other issues that had been identified as arising in the formation of contracts by electronic means. The efforts to overcome some of those problems by the use of model communication agreements were also discussed. The Commission requested the Secretariat to continue its examination of the legal issues related to the formation of contracts by electronic means and to prepare for the Commission at its twenty-fourth session a report that would analyse existing and proposed model communication agreements with a view to recommending whether a model agreement should be available for worldwide use and, if so, whether the Commission should undertake its preparation. The Commission expressed the wish that the report would give it the basis on which to decide what work might be undertaken by the Commission in the field. 5/

5. At its twenty-fourth session (1991), the Commission had before it the report it had requested, entitled "Electronic Data Interchange" (A/CN.9/350). The report described the current activities in the various organizations involved in the legal issues of electronic data interchange (EDI) and analysed the contents of a number of standard interchange agreements already developed or currently being developed. It also pointed out that such documents varied considerably according to the various needs of the different categories of users they were intended to serve and that the variety of contractual

---

3/ Official Records of the General Assembly, Fortieth Session, Supplement No. 17 (A/40/17), para. 360.

4/ Ibid., Forty-third Session, Supplement No. 17 (A/43/17), paras. 46 and 47, and ibid., Forty-fourth Session, Supplement No. 17 (A/44/17), para. 289.

5/ Ibid., Forty-fifth Session, Supplement No. 17 (A/45/17), paras. 38 to 40.

arrangements had sometimes been described as hindering the development of a satisfactory legal framework for the business use of EDI. It suggested that there was a need for a general framework that would identify the issues and provide a set of legal principles and basic legal rules governing communication through EDI. It concluded that such a basic framework could, to a certain extent, be created by contractual arrangements between parties to an EDI relationship but that the existing contractual frameworks that were proposed to the community of EDI users were often incomplete, mutually incompatible, and inappropriate for international use since they relied to a large extent upon the structures of local law.

6. The report also noted that, although many efforts were currently being undertaken by different technical bodies, standardization institutions and international organizations with a view to clarifying the issues of EDI, none of the organizations that were primarily concerned with worldwide unification and harmonization of legal rules had, as yet, started working on the subject of a communication agreement. Accordingly, the report suggested that the Commission, in view of its ability to bring to bear the views of all legal systems, including those of developing countries that were already or would soon be confronted with the issues of EDI, might wish to consider itself preparing a standard communication agreement for use in international trade.

7. The report also suggested that, on the legislative level, possible future work for the Commission on the legal issues of EDI might concern in particular the subject of the replacement of negotiable documents of title, and more specifically transport documents, by EDI messages. That was an area where the need for statutory provisions seemed to be developing most urgently with the increased use of EDI. The report suggested that the Secretariat might be requested to submit a report to a further session of the Commission on the desirability and feasibility of preparing such a text.

8. The Commission was agreed that the legal issues of EDI would become increasingly important as the use of EDI developed and that the Commission should undertake work in that field. As regards the specific suggestions reflected above, there was wide support for the suggestion that the work of the Commission should be aimed at identifying the legal issues and principles involved in communication through EDI and providing a set of basic legal rules. The Commission was agreed that, given the number of issues involved, the matter needed detailed consideration by a Working Group.

9. Divergent views were expressed at the twenty-fourth session of the Commission as to whether the preparation of a standard communication agreement should be undertaken by the Commission as a priority item. One view was that work on a standard agreement should be undertaken immediately since no such document existed for worldwide use and since the Commission, because of its representative character, would be a particularly good forum for such work. The prevailing view, however, was that it was premature to engage immediately in the preparation of a standard communication agreement and that it might be preferable, until the next session of the Commission, to monitor developments in other organizations, particularly the Commission of the European Communities and the Economic Commission for Europe.

10. After deliberation, the Commission decided that a session of the Working Group on International Payments would be devoted to identifying the legal issues involved and to considering possible statutory provisions, and that the Working Group would report to the Commission at its next session on the desirability and feasibility of undertaking further work such as the

preparation of a standard communication agreement. The Commission also took note of the suggestion by the Secretariat to prepare a uniform law on the replacement of negotiable documents of title, and more particularly transport documents, by EDI messages. 6/

11. The Working Group, which was composed of all States members of the Commission, held its twenty-fourth session at Vienna, from 27 January to 7 February 1992. The session was attended by representatives of the following States members of the Working Group: Argentina, Bulgaria, Canada, Chile, China, Costa Rica, Cuba, Czechoslovakia, Egypt, France, Germany, Hungary, Iran (Islamic Republic of), Italy, Japan, Mexico, Morocco, Netherlands, Spain, United Kingdom of Great Britain and Northern Ireland, and the United States of America.

12. The session was attended by observers from the following States: Algeria, Australia, Austria, Belgium, Brazil, Finland, Indonesia, Lebanon, Oman, Pakistan, Paraguay, Peru, Philippines, Poland, Saudi Arabia, Sweden, Switzerland, Thailand, Tunisia, Turkey, Uganda and Yemen.

13. The session was attended by observers from the following international organizations: Economic Commission for Europe (ECE), International Monetary Fund (IMF), Commission of the European Communities (CEC), Hague Conference on Private International Law, Intergovernmental Organization for International Carriage by Rail (OTIF), Asian Clearing Union (ACU), International Rail Transport Committee (CIT) and International Union of Railways (UIC).

14. The Working Group elected the following officers:

Chairman: Mr. José María Abascal Zamora (Mexico);

Rapporteur: Mr. Essam Ramadan (Egypt).

15. The Working Group had before it the following documents: provisional agenda (A/CN.9/WG.IV/WP.52) and a note by the Secretariat (A/CN.9/WG.IV/WP.53) listing a number of issues possibly to be included in the programme of future work on the legal aspects of EDI.

16. The Working Group adopted the following agenda:

1. Election of officers;

2. Adoption of the agenda;

3. Possible issues to be included in the programme of future work on the legal aspects of electronic data interchange (EDI);

4. Other business;

5. Adoption of the report.

6/ Ibid., Forty-sixth Session, Supplement No. 17 (A/46/17), paras. 311 to 317.

17. The following documents were made available at the session:

(a) Report of the Secretary-General on the Legal Value of Computer Records (A/CN.9/265);

(b) Report of the Secretary-General on Electronic Data Interchange - Preliminary study of legal issues related to the formation of contracts by electronic means (A/CN.9/333);

(c) Report of the Secretary-General on Electronic Data Interchange (A/CN.9/350).

I. PRELIMINARY REMARKS

18. Prior to commencing its discussion of the legal issues of EDI, the Working Group engaged in a general overview of the current work of other international organizations active in the field. A report was made to the Working Group on behalf of the Working Party on Facilitation of International Trade Procedures (WP. 4) of the Economic Commission for Europe concerning the action programme on commercial and legal aspects of trade facilitation adopted at the twenty-third session of the Working Party (TRADE/WP.4/R.697). 7/ It was recalled that the action programme encompassed the following projects: preparation of an interchange agreement; preparation of a portion of the United Nations Trade Data Directory (UN/TDID) dealing with legal issues; reduction of barriers to international trade that might stem from the commercial practice of transferring rights through the use of negotiable documents; identification of existing legal and commercial barriers; definition of electronic messages and their "signatures"; and coordination with other bodies.

19. A presentation was also made on behalf of the Intergovernmental Organization for International Carriage by Rail (OTIF) on the progress of the DOCIMEL Project that was aimed at replacing the paper-based rail consignment note by an electronic message. 8/ It was also indicated that the Commission of the European Communities (CEC), 9/ the International Chamber of Commerce (ICC), 10/ the International Maritime Committee (CMI), 11/ the Baltic and International Maritime Council (BIMCO), 12/ the International Road Transport

---

7/ A summary of the action programme (TRADE/WP.4/R.697) was contained in A/CN.9/350, paras. 28 to 44.

8/ The DOCIMEL Project was summarized in A/CN.9/350, paras. 49 to 51.

9/ The work of the Commission of the European Communities within the TEDIS Project was summarized in A/CN.9/333, paras. 15 to 41 and in A/CN.9/350, paras. 12 to 26.

10/ The work of the ICC was described in A/CN.9/350, paras. 45 to 48.

11/ The work of the CMI was described in A/CN.9/350, paras. 54, 69 and 104 to 108.

12/ The BIMCO Project on electronic bills of lading was briefly described in A/CN.9/WG.IV/WP/53, para. 87.

Union (IRU), 13/ the United Nations Conference on Trade and Development (UNCTAD) and the Customs Co-Operation Council (CCC) had undertaken projects in connection with the legal aspects of EDI.

20. The Working Group also took note of a number of initiatives taken by governments and national trade facilitation bodies with a view to facilitating the use of EDI. Such initiatives included: review of applicable commercial law and rules applicable to tax, accounting, customs and other regulatory matters, so as to identify legal and regulatory obstacles to the increased use of EDI; establishment of pilot projects on such issues as the use of EDI in public procurement; preparation of model communication agreements for optional use by parties using EDI; drafting of new national legislation specifically designed to accommodate the needs of EDI users, for example as regards presentation of evidence. In that connection, it was stated that while some of the legal issues of EDI (e.g., the admissibility of EDI messages as evidence) might need to be treated differently in different areas of law (e.g., admissibility of evidence in litigation as contrasted with admissibility of evidence for regulatory purposes), some other legal issues of EDI such as liability for failure or error in communication would require a cross-sectoral treatment.

21. The Working Group expressed its appreciation for the information it had received regarding the work currently undertaken by international organizations active in the field and regarding national surveys or revisions of legislation undertaken by national authorities. It was agreed that that information would significantly assist the Working Group in its attempt to determine the practical need for specific legal rules concerning EDI. It was also agreed that those indications illustrated the need for a close cooperation between all interested organizations so as to harmonize solutions and to avoid duplication of work.

II. POSSIBLE SCOPE AND FORM OF FUTURE WORK

22. The Working Group preceded its consideration of possible issues of future work with a discussion of the scope and form which that work should take. The possible forms of the work considered included the identification of general legal principles applicable to the use of EDI in trade, the preparation of a legal guide, and, on the legislative level, the elaboration of statutory provisions.

23. According to one view, the Working Group should focus in the initial stage of its work on the identification of general principles of law applicable to the main issues raised by the use of EDI in trade. Those issues included, for example in the area of contract formation, the effect of electronic communications on the questions of offer and acceptance, requirements for verification of receipt of electronic messages, the legal effect of reduced human decision-making, evidentiary considerations, the legal status of network providers (including central data managers), and the determination of applicable law. Along these lines, it was suggested that the Working Group might undertake the preparation of a legal guide that would identify what seemed to be the extremely varied range of legal issues arising

---

13/ The work of the IRU was described in A/CN.9/350, paras. 52-53.

in the context of EDI and that would suggest legal principles for optional use by those trading partners who considered establishing an EDI relationship or by those national authorities that were confronted with EDI.

24. In favour of work on the legislative level, it was recalled that the mandate given the Working Group was to consider possible statutory provisions. It was also stated that statutory provisions, because they would offer detailed guidance, would be a more effective tool in assisting States to remove legal obstacles to the increased use of EDI. It was observed that, due to a lack of such detailed guidance, the recommendation adopted by the Commission in 1985 (see above, para. 2) with a view to establishing legal principles and to providing guidance to national legislators and regulatory authorities for the removal of legal obstacles to the increaed use of EDI had resulted in little progress in the removal of those obstacles. It was pointed out that more progress could probably have been achieved if the general principles contained in the recommendation had been expressed in a more detailed manner, so as to suggest practical and detailed rules as to how paper-based requirements could have been removed and how paper could have been replaced by a functional equivalent for use in an electronic environment. It was widely agreed that, while an attempt to design such detailed rules might have been premature in 1985, and while it might still be premature regarding some aspects of the commercial use of electronics in view of the continuing technical changes, the time might now be appropriate for considering the preparation of detailed rules regarding some other aspects of the use of EDI. It was also agreed that any attempt to design legal rules and principles on EDI should be based on a close observation of commercial practices and aimed at enhancing the use of EDI. It was stated that, irrespective of the form that might be taken by the work of the Commission regarding EDI, that work should serve an educative function and should be aimed at demonstrating the merits of EDI techniques as compared to current paper-based practices.

25. The Working Group decided at the outset that the focus of its work should be on legal issues raised by the use of EDI in international trade, in line with the approach taken in previous work by the Commission. It was noted that such a focus, depending upon the form of work, might entail the need to establish a test for internationality and would not exclude the possibility of use in a domestic environment of any rules prepared by the Commission.

26. The Working Group then proceeded with a survey of the legal issues and commercial practices involved with a view to determining whether such issues and practices had reached a degree of maturity that would call for the preparation of legal rules or whether the situation remained so unstable that only general principles could be elaborated. The Working Group also agreed that, after completing that survey, it would consider the question of the form which the work of the Commission should take. In that connection, the Working Group recalled that the specific mandate that had been given to it was to devote the present session not only to identifying the legal issues involved but also to considering possible statutory provisions on those issues, as well as to report to the Commission at its next session on the desirability and feasibility of undertaking further work such as the preparation of a standard communication agreement. It was noted that different forms of work might be appropriate for different issues.

27. On the question of a standard communication agreement, it was stated at the outset of the discussion that it was neither necessary nor appropriate for the Commission, at least at this stage, to develop a standard communication

agreement. The reasons given included the fact that a number of communication agreements had already been developed; that work was being carried out within the framework of other organizations on communication agreements, some aimed at sectoral and others at universal use; and the possibility that there may in fact be a need for a variety of communication agreements (e.g., some tailored to specific commercial sectors), rather than for one universal model.

28. As to the specific order in which issues should be discussed at the present session, a suggestion that the discussion generally follow the order in which the issues were presented in the paper before the Working Group was generally accepted, although it was noted that the list was not exhaustive and might require future additions. As to the definition of EDI, there was general agreement that in addressing the subject matter before it the Working Group would not have in mind a notion of EDI that was limited to the electronic exchange of information between closed networks of users that had become party to a communication agreement. Rather, the Working Group would have in mind a notion of EDI encompassing also open networks that allowed EDI users to communicate without having previously adhered to a communication agreement, thus covering a variety of trade-related EDI uses that might be referred to broadly under the rubric of "electronic commerce".

29. Differing views were expressed as to whether the Working Group should attempt at the outset of its discussion to consider a more specific definition of EDI. One view was that such an exercise would usefully set out the scope of the issues to be considered by the Working Group since it might not be immediately clear whether certain methods of communicating information electronically (e.g., facsimile) were to be considered as falling within the notion of EDI. The prevailing view, however, was that, having the above-mentioned general notion of EDI or "electronic commerce" in mind for the purpose of defining the scope of the Working Group's task, it would be best to leave the matter of a specific definition to a later stage. This order of discussion was felt to be particularly appropriate because the question of the definition of EDI might arise repeatedly with respect to various points and in fact might differ with respect to different issues to be considered by the Working Group, and because the panoramic view of the issues involved would place the Working Group in a better position to consider a definition of EDI.

30. However, without attempting to define EDI at that stage, the Working Group discussed whether the above-mentioned broad notion of EDI should be interpreted as encompassing consumer transactions. After discussion, the Working Group was agreed that, should it recommend the preparation of legal rules on EDI by the Commission, it would also recommend that issues of consumer law be expressly excluded from the scope of those rules.

31. In the same vein, it was stated that the reference to "open networks" should not be interpreted as covering systems open to the public for consumer transactions, such as point-of-sale systems. Rather, "open networks" should be interpreted as those communication systems that were designed to enhance the inter-operability of existing and future closed networks. As an example of such an open network, it was indicated that systems were currently being designed to allow the direct transmission of data between operators connected to different closed networks. It was stated that such systems relied on the use of an "electronic envelope" that could be processed by different network systems and involved the creation of directories (sometimes referred to as "electronic yellow pages") that would allow EDI to be used in a way similar to telex. It was observed that the processing of data by different networks might raise specific legal problems, particularly as regards the issue of liability for failure or error in transmission.

III. POSSIBLE ISSUES OF FUTURE WORK

A. Requirement of a writing

1. Mandatory requirement of a writing

32. The Working Group recognized that, at least in some legal systems, rules requiring certain transactions to be concluded or evidenced in writing might constitute impediments to the use of EDI. Differing approaches were considered as to the possible manner in which such writing requirements existing in various laws should be dealt with in the effort to create a legal environment hospitable to the use of EDI. One approach would be to make an effort to do away with writing requirements altogether so as to facilitate the use of EDI to the maximum possible degree. There was little support for an attempt to eliminate writing requirements generally. Such an approach was considered not only to be difficult to implement, but also of questionable appropriateness and of limited acceptability.

33. Reasons cited for the inadvisability of attempting an across-the-board removal of writing requirements included the continuing use, in most if not all legal systems, of writing requirements for specific purposes such as the evidencing of certain types of contracts and for negotiability; the presence of requirements for a writing to produce specific legal effects, for example, requirements for the issuance of documents under transport conventions (e.g., the Convention for the Unification of Certain Rules Relating to International Carriage by Air, Warsaw, 1929) and requirements that agreements to arbitrate or agreements on jurisdiction be in writing (e.g., the 1958 Convention on the Recognition and Enforcement of Foreign Arbitral Awards); and the fact that the benefits of advances in technology that made the use of EDI possible and raised the possibility of eliminating writing requirements were not uniformally available to all countries, in particular developing countries.

34. In view of the above, there was a widely shared view that the preferable approach to dealing with possible impediments to the use of EDI posed by writing requirements found in national laws would be to extend the definition of "writing" to encompass EDI techniques, thereby facilitating the fulfilment of those requirements through the use of electronic means. It was agreed that the aim of this approach, sometimes referred to as a "functional-equivalent approach", should be to enable, rather than to impose, the use of EDI. It was observed that an extended definition of writing would permit States to adapt their domestic legislation to developments in communications technology applicable to trade law without necessitating the wholesale removal of the writing requirements themselves or disturbing the legal concepts and approaches underlying those requirements. At the same time, it was said that the electronic fulfilment of writing requirements might in some cases necessitate the development of new rules. This was due to one of many distinctions between paper-based documents and EDI, namely, that the latter were readable by the human eye, while the former were not so readable unless reduced to paper or displayed on a screen.

35. It was proposed that a definition of writing along the following lines should be considered:

> "Writing includes but is not limited to a telegram, telex and any other telecommunication which preserves a record of the information contained therein and is capable of being reproduced in tangible form."

While questions were raised as to the feasibility of proposing a single formula to cover the many differing circumstances and purposes to which writing requirements were currently applied, and the resulting limits to the extent of possible harmonization, it was generally agreed that a definition of this type merited consideration.

36. It was noted that an extended definition of "writing" would still rely on an analogy between EDI messages and written documents and that it would not create the entirely new concept that was sometimes referred to as needed to accommodate the most advanced uses of EDI. However, it was generally agreed that such an extended definition would not preclude further investigation from being undertaken to determine which new concept might be appropriate. It was also generally agreed that an extended definition of "writing" would help to address the wide variety of situations where EDI relationships remained comparable to paper-based relationships.

37. Various suggestions for refinements and other observations were made concerning the proposed definition, based in particular on the general concern that the definition should not be drafted narrowly, thereby possibly excluding future advances in technology not currently envisaged. In this connection, it was noted that any requirement of reduction to paper should be excluded, as was done in the proposed definition, as any such requirement would defeat the purpose of EDI. From a similar standpoint, it was suggested that the word "tangible" might be susceptible to a narrow construction and that therefore it might be preferable to use words such as "readable", "legible", or even "audible". A further suggestion along these lines was that the extended definition should not be limited to computer-to-computer communications, but should also encompass techniques such as storage of data on optical discs and through the use of voice imprints.

38. Another proposed solution to the problem of foreclosing advances in technology was to avoid focusing in the definition on particular modes of communication, and instead to focus on the essential element of the record-keeping function that was traditionally fulfilled by writing but could now be fulfilled through the use of EDI techniques. In response to this suggestion, it was stated that some reference to modes of communication was probably unavoidable since the very purpose of extending the definition of writing was to encompass new modes of communication.

39. The attention of the Working Group was drawn to an example of another approach to the recognition of electronic equivalents to paper-based documents. The particular legislation cited prescribed conditions under which EDI messages exchanges by participants in certain closed-networks would be deemed to fulfil writing requirements found in the applicable law. Those conditions included a limitation to traders approved by the government, as well as the use of approved standard message formats and government-certified communication networks. It was observed that a system of this type raised the question of the extent of the government role, as opposed to the role of private parties, in approving the use of standard message formats.

2. Contractual definition of a writing

40. It was recalled that communication agreements often contained stipulations aimed at overcoming possible difficulties that might arise concerning the validity and enforceability of legal acts (particularly contracts) due to the fact that they were formed through an exchange of EDI messages instead of the usual written documents. Such communication agreements often adopted one or both of the two following approaches to establish the legally binding value of EDI messages. Under the first

approach, EDI messages were defined as written documents by mutual agreement of the parties (see A/CN.9/350, paras. 68 to 76). The second approach relied upon a mutual renunciation by the parties of any rights or claims to contest the validity or enforceability of an EDI transaction under possible provisions of locally applicable law relating to whether certain agreements should be in writing or manually signed to be binding upon the parties (see A/CN.9/350, paras. 77-78).

41. The view was expressed that contractual definitions of "writing" would be of little relevance to the work of the Working Group if its recommendation to the Commission was to undertake the preparation of statutory provisions on the topic. It was further stated that contractual definitions of "writing" would be of limited utility in view of the fact that contractual stipulations could not determine the rights and obligations of third parties. However, it was also recalled that one purpose of a uniform law might be to enable potential EDI users to establish a secure EDI relationship by way of a communication agreement within a closed network. It was thus pointed out that it might be useful to envisage a statutory provision to the effect of eliminating the doubts that might exist in some legal systems as to the validity of privately agreed definitions of "writing". It was also stated that, in some countries, contractual definitions of "writing" were particularly important in view of the fact that they were used in agreements between public authorities such as tax authorities and private EDI users.

42. While the Working Group was generally agreed that the principle of party autonomy should be affirmed as regards the definition of a "writing", wide support was given to a suggestion that a "functional equivalent approach" should be taken regarding the issue of "writing". The functional approach would rely on an analysis of the functions traditionally served by paper documents and allow parties to agree as to which of the traditional functions of the paper would be served by EDI messages. It was stated that the mere indication of parties' freedom to agree on a definition of "writing" that would go beyond the traditional paper-based definitions would not sufficiently guarantee the legal safety of EDI transactions in case of litigation. It was observed that a writing served the following functions: to provide that a document would be legible by all; to provide that a document would remain unaltered over time; to allow for the reproduction of a document so that each party would hold a copy of the same data; to allow for the authentication of data by means of a signature; and to provide that a document would be in a form acceptable to public authorities and courts. It was stated that in respect of all of the above-mentioned functions of paper, electronic records could provide the same level of security as paper and, in most cases, a greater degree of certainty, provided that a number of technical and legal requirements were met.

43. In that connection, it was stated that a distinction should be drawn between EDI messaging and interactive EDI. While EDI messaging performed a number of functions similar to those traditionally performed by means of communication based on paper documents, interactive EDI provided the basis for transactions that involved multiple parties in a number of quasi-simultaneous relationships and that were hardly conceivable in a paper-based environment. It was suggested that a double set of legal rules might be needed, one of which would adapt existing rules to allow the electronic fulfilment of the functions traditionally served by paper documents, while the second set of rules would be intended to cover the entirely new situation created by the possibility of EDI transactions. At the same time, a concern was expressed that, should the Working Group recommend the preparation of new rules, those new rules should remain subject to the fundamental legal principles of the national legal systems.

B. Evidential value of EDI messages

1. Admissibility of EDI messages as evidence

44. The Working Group commenced its consideration of this item by hearing statements concerning statutory and case law in different legal systems on the question of admissibility of computer records and other forms of electronic-based evidence. This exercise revealed a variety of approaches. In many legal systems, parties to commercial disputes were generally permitted to submit any type of evidence that was relevant to the dispute. Among those countries, however, variations existed as to the exact manner in which electronic-based evidence was admitted and handled. For example, in some countries specific rules had been established governing the introduction of electronic evidence. Such requirements were aimed at establishing the intelligibility, reliability and credibility of the evidence, focusing specifically on the method of entry of the information and the adequacy of protection against alteration. Some jurisdictions required expert certification as a condition for introduction of the evidence. In some countries, the procedures for objecting to the introduction of electronic evidence differed from the procedures involved in objecting to other forms of evidence. In quite a number of countries in this first general group, when a question arose as to the accuracy or value of the electronic evidence, it was left to the court to weigh the extent to which the evidence should be relied upon. The factors to be considered in such an assessment of the quality of electronic-based evidence might include the degree of security in the system that produced the evidence, its management and organization, whether it was operating properly and any other factors deemed relevant to the reliability of the evidence.

45. Under another approach, found in a number of countries, the question of the admissibility and the assessment of computer records and other forms of electronic evidence were entirely left to the discretion of the court.

46. It was reported that, in common law countries, in which an oral and adversarial procedure was generally employed in litigation, emphasis was placed on testimony based on the personal knowledge of witnesses, thus allowing an opponent an opportunity to verify the statements through cross-examination. In those countries, in which there tended to be a more elaborate statutory structure governing the admission of evidence and more limited judicial discretion, secondary sources were generally excluded as "hearsay evidence". In those countries in which computer records and other forms of electronic-based evidence were considered as hearsay evidence, admissibility was nevertheless possible by way of the "business records" exception to the hearsay rule. In order to be able to benefit from this exception, the proponent of the evidence would typically have to demonstrate that the information was compiled in the normal course of business and would have to describe the chain of events involving the compilation of the information and leading up to the point when the evidence assumed its current form, so as to ascertain the integrity and reliability of the system producing the evidence. In some cases the testimony of an expert might have to be tendered to certify the reliability of the evidence. Opponents of the evidence would be permitted to present conflicting evidence in written, oral or electronic form.

47. The above survey revealed that in most countries a distinction had to be drawn between the admissibility of electronic evidence in judicial proceedings and the acceptance and use of such evidence by administrative authorities.

The applicable rules and approaches employed in the two types of fora tended to differ. In the administrative sphere, the focus tended to be on the gathering of information and greater discretion on the part of the administrative authority, with generally less emphasis than in the judicial sphere on evidentiary rules and procedures. At the same time, there were instances in which administrative and regulatory statutes (e.g, tax and securities laws) imposed particular requirements that had potential evidentiary implications. Among the requirements of this type that were most prevalent were obligations imposed on commercial entities to maintain business records for accounting and tax purposes. In some countries the use of EDI for such purposes was expressly sanctioned, subject to conditions such as the intelligibility and unalterability of electronic records. In the legislation of one country that was cited, however, permission to use of EDI was specifically tied to the eventual production of paper documents. It was also reported that in some countries administrative authorities sometimes conducted hearings for which rules of evidence were established. A further observation was that judicial rules of evidence might have a general influence on the evidence-taking conduct of administrative authorities because of the possibility of eventual litigation.

48. Another issue that came up in the discussion that was of pertinence to the admissibility of electronic evidence was the requirement encountered in some instances that the evidence should be "readable". It was agreed that such requirements did not generally pose difficulties in view of the various techniques available for reducing electronic messages and records into forms intelligible to humans. In this regard, the Working Group noted with interest a definition of the word "document" that was used in one country. That definition included in the description of a document any article or material from which sounds, images or writings were capable of being reproduced, with or without the aid of any other article or device.

49. The Working Group also noted the possibility that certain practices of EDI users and intermediaries might conflict with traditional notions in the law of evidence, in particular the notion of an "original" document (see below, paras. 60 to 70). It was reported in this regard that there might be some uncertainty as to what constitutes an original in the EDI context. This uncertainty was attributable to the widespread use, due to security considerations, of encryption keys and codes for the scrambling of messages during transmission. These scrambled messages, which might be considered as "original", typically disappeared upon translation or decoding by the recipient. A further complication from the standpoint of traditional notions of a document as a vessel for storage of information was due to the fact that, once received and decoded, the information might be divided and scattered into various areas of the electronic records of the receiver. This operation was described as one aspect of the process generally referred to as the "dematerialization" of a document. It was observed that, because of these two trends, and against the backdrop of the desire to eliminate paper records, it might be difficult for the parties in an EDI context to come up with an "original" of, for example, an invoice. It was further observed that this phenomenon raised the question of whether the "original" should be considered as being the message in the hands of the sender prior to being transmitted and perhaps encrypted, or the data received by the recipient, irrespective of whether that received message had been brought up on the screen or otherwise acted upon by the recipient. A concern was raised as to whether such practices as automatic deletion of scrambled messages or "dematerialization" might not be equated, in some jurisdictions, with destruction of evidence. In response, it was stated that most legal systems would probably not regard

scrambled messages encoded for transmission as "originals". Furthermore, it was stated that, in many legal systems, rules on the admissibility of evidence only required the production of the best available evidence, not necessarily originals (see below, para. 61).

50. Having completed its overview of provisions in national law on the admissibility of EDI evidence, the Working Group considered the question of the manner in which assistance could be given to States in removing obstacles to the use of computer records for evidentiary purposes. It was generally felt that, while an agreement could probably be reached within the Working Group as to admissibility of evidence in a strict sense (i.e., the right for parties to produce electronic records in the context of trials or administrative procedures), difficulties would remain as to the criteria to be applied in the weighing of the evidential value of such records by courts or administrative authorities. It was a generally held view that, in view of the significant diversity in national legal approaches to questions of evidence, it would not be advisable to attempt to enunciate detailed models for statutory provisions. Rather, it would be preferable to recommend that, to the degree possible, obstacles to the admission of EDI evidence should be removed. At the same time, the concern was voiced that, in order to be effective in providing guidance, such a recommendation should not be overly general. In this connection, it was suggested that the recommendation should provide more detailed guidance on possible legislative reform than had been provided in the 1985 UNCITRAL recommendation on the legal value of computer records.

51. As to the specific content of a recommendation, reference was made to the need to take into account the different possible cicumstances and purposes involved when EDI evidence was proferred, differences which could play a role in determining the approach to be applied to admissibility. It was said not to be possible to generally separate the nature of the evidential questions to be dealt with from the ultimate question of fact being put to the trier of fact. For example, if the sole issue was whether a party had received notice, the inquiry would be limited to whether the EDI message had been received; if the question was whether the sender was binding itself through the message, the questions of authenticity and verification would have to be considered. The view was expressed that it would also be particularly useful to identify the main issues and highlight the various problems raised by EDI evidence. For example, guidance could be provided as to factors relevant in determining the degree of weight to be afforded to EDI evidence.

52. As to the admissibility of EDI evidence for administrative purposes, a view was expressed that a topic for future work might be to review the criteria used by administrative authorities to assess the admissibility of electronic evidence. The prevailing view, however, was that recommending changes in administrative rules at the national level would not be an appropriate focus of work by the Commission. At the same time, it was recognized that recommendations that were made with respect to the removal of obstacles to the use of EDI at the international level might help to foster the removal of such obstacles in the administrative sphere.

2. Burden of proof

53. The Working Group next turned its attention to the question of whether any particular burden of proof considerations arose as a result of the use of EDI. In particular, questions were raised as to the feasibility of uniform application to EDI of the traditional notion found in many countries that the burden of proof lay with the party bringing a matter before the court. It was

suggested that that notion might not be applicable if factors were present that would justify a shifting of the burden of proof. One such factor that drew particular attention was inequality of the parties. There was support for the view that, where relevant, and in order to prevent injustice, it would be appropriate to place the burden of proof on the party in control of the EDI network. In this regard, it was observed that the question of burden of proof was of limited relevance in cases in which the operator of an EDI network disclaimed liability, as was said to be typically the case with such networks, and the disclaimer was upheld. Other factors that were cited as possible grounds for shifting of the burden of proof included destruction by a party of EDI records and failure to apply agreed upon security measures related to an EDI transmission. It was suggested that it would not be possible to lay down rules to govern all the possible situations that might arise, though it might be possible and useful to compile a list of such factors that would be relevant to assigning the burden of proof.

54. According to a somewhat different perspective, it was difficult to address the question of burden of proof in the abstract and therefore the focus should be on what was to be proved in any given case, the nature and contractual terms of the underlying transaction, and the value to be given to the evidence. According to this approach, it could not be said in the abstract that a party that destroyed evidence or failed to carry out security measures would in all cases and as a necessary result of such acts have to shoulder the burden of proof. Such conduct might, rather, only diminish the credibility of that party or the weight of its evidence.

55. It was further observed that the question of burden of proof might, in some cases, be moved off of center stage, if not avoided, by the contractual terms governing the underlying relationship and the presumptions established by those terms. For example, if the question at issue was whether a payment order was authorized, and the parties had agreed to certain security measures to be applied to the EDI messages involved, the presumption would be that the payment order was in fact authentic, valid and authorized. It was said that such cases demonstrated that the parties could change the normal allocation of burden of proof by defining their obligations, rather than by addressing the question of burden of proof. A view was expressed that the impact of such measures might be a useful topic for study.

56. The attention of the Working Group was also drawn to another approach, found in a number of States, which stressed the collaboration of each of the parties in the production of evidence so as to illuminate a dispute. Under such an approach, the court had the power to order the production of certain types of evidence, and parties that failed to participate in the production of the evidence could be held liable for damages.

57. Finally, the Working Group considered the question of the applicability of the notion of contractual freedom to the allocation of the burden of proof. There was support for the view that contractual freedom in this regard should be generally recognized and that any rules that might be drawn up should be suppletive. It was also pointed out that, as was stated earlier with regard to the general applicability of the notion of burden of proof to the EDI environment, the contractual terms defining an EDI relationship might affect burden of proof issues. At the same time, reference was made to the possibility that there might be certain unavoidable limitations on the contractual freedom of the parties in this area. Such limitations might stem, in particular, from mandatory rules of applicable law. A further observation was that, notwithstanding the principle of freedom of contract, a court considering the allocation of burden of proof might in some cases look beyond what had been agreed upon by the parties.

58. It was also noted that the question of contractual allocation of burden of proof needed to be viewed in the light of the possible relationships involved, including not only the relationship between the sender and the receiver of an EDI message, but also the relationship between the sender or reciever and the operator of the EDI network. With regard to that latter relationship, reference was made to a common practice of network operators to decline liability for losses incurred by users as a result of problems in transmission of messages. The view was expressed that such blanket disclaimers were potentially an abuse of a dominant position and that this was an area in which contractual freedom needed to be curtailed by rule-making.

59. Following the conclusion of the above discussion, the Working Group decided to return to the question of burden of proof at a later stage, after it had considered the remaining issues, some of which might have burden-of-proof implications.

C. Requirement of an original

60. At the outset, it was noted that a number of issues and solutions that had been discussed in relation to writing requirements and to the question of the admissibility of electronic evidence bore a relation to the question of the applicability in the electronic environment of requirements that documents and other records had to be presented to a court in their original form.

61. The Working Group heard statements concerning the status in various countries of the requirement of an original. Those statements revealed that the extent to which this requirement was applied varied from country to country. In some countries the production of an original was required for a number of specified purposes such as to provide evidence of title (e.g., registration of share certificates and transfer of title), the granting of a security interest by deposit of a document of title with the creditor, transfer of negotiable instruments by way of transfer of the instrument, and various statutory and administrative requirements. In other countries, the requirement of an original was applied more narrowly; for example, an original might be required only to evidence title to land. In the latter group, emphasis was placed on the reliability and durability of the copy, rather than on whether a particular document was the first in a chain of reproduction. It was also noted that the concept of an original might be considered as diluted somewhat by the fact that in many situations the parties agreed that there was more than one "original" (e.g., when a contract was executed in two "original copies"). It was further noted that in many countries requirements for an original were softened by the availability of the principle of "best available evidence" when a required original was unavailable.

62. There was general agreement that the requirement of an original was an obstacle to the wider use of EDI in international trade and that the problem needed to be addressed. However, differing view were expressed as to the extent to which the requirement could reasonably be expected to be eliminated. On the one hand, the view was expressed that even with the introduction of electronic equivalents of paper documents, the need to have, to one extent or another, parallel paper-based records would continue to be maintained for the foreseeable future. On the other hand, the view was expressed that the aim of many parties adopting EDI procedures, particularly in regard to company-to-company, and company-to-administrative authority relationships, was to eliminate the storage of paper records altogether. According to this view, envisaging the parallel storage of paper could mean that the introduction of EDI would increase rather than decrease the total cost of processing and storing information.

63. The Working Group considered two ways in which the requirement of an original might be reduced as an obstacle to the use of EDI. One approach, similar to the one proposed earlier in the session in connection with the requirement of a writing, was to suggest that, where necessary, the definition of "original" should be expanded so as to include EDI messages and records. That approach did not generate a significant level of interest, in particular because the Working Group generally felt that the notion of an "original" was of little relevance in the EDI context. It was generally felt that the more appropriate notion was that of a "record" that could be translated into readable form. The second possible approach, which was sometimes referred to as the "functional-equivalent approach" and was regarded by the Working Group as preferable, was to identify the purposes and functions of the traditional requirement of an original with a view to determining how those purposes or functions could be fulfilled through EDI techniques. It was noted that in a number of countries this functional approach was being applied to varying degrees or was in the process of being established.

64. With such a functional approach in mind, the Working Group engaged in a review of the traditional purposes and functions of originals, as well as in an overview of the types of functional equivalents that had already been developed. Those purposes centered around the notion that a party bringing suit or otherwise asserting rights based on an underlying document must have the original, or sufficient reason for loss of the original, so as to ensure that that party was indeed endowed with the rights being asserted. Other purposes included ensuring the availability of the best possible evidence, and authentication of transactions. It was also pointed out that there were cases in which the original could not be found and that for such cases legal systems provided ways to recreate the original, thus demonstrating that the need for an original was not absolute.

65. It was reported that, for each of those purposes, electronic equivalents could be developed or were in fact already in use. Examples of this trend that were cited included the electronic trading of securities, in which rights were acquired and transferred without paper, registry systems accommodating electronic filing of security interests, and acceptance by fiscal authorities of electronic filings and of documents such as invoices in electronic form. The view was expressed that, of the purposes of originals, those linked to negotiability presented the greatest degree of difficulty, although here too electronic equivalents could be envisaged.

66. The Working Group noted with interest the relevance and advancement of electronic means of signature and authentication aimed at ascertaining that an EDI message that was received was the same message that had been sent, at verifying the integrity of the message, and at ensuring non-repudiation of the message by the sender. It was reported that a key measure in this regard was the "digital signature", which was well suited in particular in the banking sector. This technique, on which work was continuing to be carried out by a number of organizations, involved the partial or total encryption of a message in order to verify that it was from the purported sender and that it had not been altered, and could be used by the recipient to prevent the sender from denying transmission of the message.

67. Attention was drawn to the need to keep in mind the underlying relationships, and in particular the rights of third parties, that might be affected as electronic equivalents were introduced as replacements for originals. One case that was cited as an example was the power of attorney. It was suggested that any electronic replacement would have to be able to ensure that third parties, including courts, could ensure the continuing

existence of the power involved. In this regard, it was suggested that registry systems could serve a useful function when the rights of third parties were involved, although it would be difficult to envisage dealing with all types of possible relationships under a single type of approach.

68. The rights of third parties also came up in connection with questions raised about the functioning and legal implications of electronic filing of security interests. In particular, the question was raised as to the possibility of a conflict between a paper document in the hands of one party evidencing a security interest, and an electronic filing by another party of a security interest in the same property. It was pointed out that in such a case the mere existence of a paper document would not be sufficient to establish a security interest; rather, filing with a central authority would be required, with the outcome resting on which party was first to file. Analogous problems in the securities trade could be solved through similar means. It was also noted that fraud-tainted EDI transmissions might raise the question of the responsibility of the sender and that questions of a similar nature had arisen in the preparation of the draft UNCITRAL Model Law on International Credit Transfers.

69. A question was raised as to the possible limit on the extent to which electronic equivalents could reliably replace originals in view of the fact that the originals of some EDI messages might be considered as existing only in the random access memory (RAM) of computers, rather than on hard or floppy discs where the risk of loss of data would be lower. In response to this concern, it was pointed out that article 10 (a) of the UNCID Rules imposed the obligation on EDI users to ensure that a complete trade data log was maintained of all transfers as they were sent and received, without any modification. It was also suggested that the evidential problem might be solved in such cases pursuant to the principle of best available evidence.

70. It was noted that in some countries, in the absence of legislative modernization to keep pace with clear legislative authority on questions such as the applicability of the requirement of originals in the electronic environment, regulatory decisions at lower levels and ad hoc arrangements entered into between companies and administrative authorities were used to facilitate the use of EDI. A concern was raised that such situations might give rise to eventual difficulties and should be regularized through appropriate legislative reform.

D. Signature and other authentication

71. The discussion focused on the functions traditionally performed by a handwritten signature on a paper document. It was observed that one function of a signature was to indicate to the recipient of the document and to third parties the source of the document. A second function of a signature was to indicate that the authenticating party approved the content of the document in the form in which it was issued.

72. It was stated that various techniques (e.g., "digital signature") had been developed to authenticate electronically transmitted documents. Certain encryption techniques could authenticate the source of a message, and also verify the integrity of the content of the message. It was observed that, in considering whether to employ such authentication methods, attention needed to be paid to the costs involved, which might vary considerably according to the extent of computer processing that was required. Such costs needed to be weighed against the presumed benefits in choosing the appropriate mode of

authentication. It was suggested that different levels of authentication would probably need to be considered by EDI users for different types of transmissions.

73. The Working Group proceeded with a review of the provisions of some multilateral conventions concerning the definition of "signature" and other means of authentication. It was noted that a number of recent international instruments envisaged functional equivalents to the handwritten signature to be used in the context of electronic transmissions. Those provisions generally provided an extended definition of "signature", such as the following definition found in Article 5 (k) of the United Nations Convention on International Bills of Exchange and International Promissory Notes:

> "'Signature' means a handwritten signature, its facsimile or an equivalent authentication effected by any other means".

However, it was noted that other instruments such as the 1958 Convention on the Recognition and Enforcement of Foreign Arbitral Awards still relied on the concept of "agreement in writing", being defined as an agreement "signed by the parties or contained in an exchange of letters or telegrams" (Article II).

74. It was further noted that the draft Model Law on International Credit Transfers (Article 4) relied on the concept of "authentication" or "commercially reasonable authentication" and provided that the purported sender of a payment order would normally be bound by the payment order if the agreed authentication procedures had been complied with. The view was expressed that the draft Model Law had done away with the concept of "signature" so as to avoid difficulties that might be involved, in either the context of the traditional or of the extended definition of "signature", in assessing whether the signer of a payment order had in fact been duly authorized to send such payment order.

75. The Working Group was generally agreed that there existed a need to eliminate the mandatory requirements of signatures in EDI communications. It was also agreed that there existed a need to promote the use of electronic authentication procedures regarding the source and the content of EDI messages, and that such procedures should be adapted to the functions served by an electronic message. Parties should be allowed to determine the nature of such authentication procedures within the realm of commercial reasonableness. Wide support was given to the idea that legislative provisions might be needed to establish the principle of "commercial reasonableness". The Working Group was agreed that the issues raised by the notion of signature, as well as by related techniques such as the digital signature, required close cooperation with other organizations active in the field, both at the technical and at the legal level.

E. Formation of contracts

1. Expression of consent in an electronic environment

76. The Working Group focused its initial discussion of the topic on the situation where parties were bound by an agreement that was concluded prior to the establishment of an EDI relationship and that expressly allowed them to conclude future contracts through the exchange of EDI messages. It was noted that such an agreed framework for the conclusion of future EDI contracts could be agreed upon by the parties either in a specific commercial agreement, often

referred to as a "master agreement", or by inserting appropriate clauses in a communication agreement. Yet another possibility was adherence by the parties to a specific network arrangement that provided rules as to the formation of contracts within the network system.

77. It was generally felt that, under such a master agreement, parties should encounter no difficulty in concluding legally binding contracts by means of EDI messages. It was stated that, at this early stage of EDI development, parties generally agreed on the need to conclude some form of a master agreement and that, depending on the form of such master agreement, contracts formed by means of EDI messages could be interpreted either as acts of execution of the master agreement or as separate contracts concluded according to procedures determined in the master agreement. However, it was noted that, as EDI further developed, parties might no longer feel a need to agree on a master agreement before they started using EDI to conclude contracts.

78. It was generally felt that, in view of the variety and complexity of national laws as regards the expression and validity of consent in the process of contract formation, as well as in view of the possible revocability of an offer, there existed a need to promote the establishment of a master agreement dealing with those issues prior to the establishment by parties of an EDI relationship. The Working Group was agreed that further discussion might be needed to determine whether uniform statutory provisions should be prepared so as to ensure that in all legal systems parties would be allowed to agree validly on the establishment of such master agreements.

79. The Working Group was also agreed that it should be considered whether there existed a need for a set of legal rules that would apply to the formation of contracts in the absence of a prior master agreement by the parties on the use of EDI. It was observed that, while the legal issues of contract formation might be similar in theory in the context of EDI and in the context of other means of teletransmission, the use of EDI required a degree of legal certainty that could not rely merely on the assumption that traditional rules would be applicable to EDI by analogy.

80. Among the issues to be considered, it was commonly admitted that the questions of offer and acceptance might be of particular importance in an EDI context since EDI created new opportunities for the automation of the decision-making process leading to the formation of a contract. Such automation might increase the possibility that, due to the lack of a direct control by the owners of the computer, a message would be sent, and a contract formed, that did not reflect the actual intent of one or more parties at the time when the contract was formed. Automation also increased the possibility that, where a message was generated that did not reflect the sender's intent, the error would remain unperceived both by the sender and by the receiver until the mistaken contract had been acted upon. The consequences of such an error in the generation of a message might be greater with EDI than with traditional means of communication, in view of the possibility that the mistaken contract would be automatically executed.

81. The view was expressed that the application of computers in the contract formation process could raise difficulties as to the existence or validity of contracts concluded by EDI, particularly where the contract formation process did not involve any direct human control and did not require any human confirmation. It was suggested that a person having, or deemed to have, final control over the computer application should be deemed to have approved the sending of all messages dispatched by that application. Another suggestion

was that, irrespective of whether consent to the formation of a given contract had in effect been expressed, all consequences of the operation of a computer system should be borne by the person who had taken the risk of operating that system.

82. As regards the issue of revocability of an offer, the Working Group recalled that Article 16 of the United Nations Sales Convention provided that an offer could normally be revoked if the revocation reached the offeree before dispatch of the acceptance. While support was given to the idea that such a rule should also be applicable to contracts formed in an EDI context, doubts were expressed as to the workability of such a rule, given the speed of EDI transmissions.

83. As an example of a situation where contracts might be formed through EDI messages without a prior agreement being reached between contracting parties, reference was made to the possible establishment of new commercial relationships through the use of EDI directories or "electronic yellow pages" (see above, para. 31). It was stated that, in practice, the decision of accepting an offer in such a context typically required human intervention. However, it was observed that it was technically feasible to program a computer so that it would automatically react to an offer by sending a message of acceptance or by adopting any other conduct that amounted to acceptance (e.g., delivery of the goods). It was generally admitted that such pre-programming should constitute a presumption that the programming party had intended to approve the sending of a message of acceptance or to any other conduct of the machine under its control.

84. It was noted that the offeror whose offer had apparently been accepted had no way of perceiving whether the apparent acceptance resulted from human or automatic intervention. More generally, it was stated that both parties should be able to rely on the apparent offer and the apparent acceptance that had been exchanged between their computers. It was suggested that a rule might be elaborated to that effect.

85. Another example of the possible conclusion of a contract without specific and express agreement was the situation in which the computer of the supplier was programmed to investigate the inventory records of the buyer and to dispatch automatically a certain quantity of goods when the quantity held by the buyer went below a certain limit. In such a situation, the supplier's computer, upon establishing that the requirements for the formation of a contract had been met, proceeded automatically to an act of execution of the contract. It was suggested that the computer that had been programmed to react automatically to an offer by an act of acceptance was not, in fact, consenting to the formation of the contract but merely establishing that the will of the offering party had meshed with the will of the accepting party. It was observed that such a theory might lead to reconsidering the traditional notion of consent. It was also stated that there might be a need to state in the form of a rule that, unless otherwise agreed, when a contract was formed as a result of the operation of a computer program, a party that executed the contract should give express notice of the formation of the contract to the other party.

86. After discussion, the Working Group was agreed that any rules on the expression of consent in an electronic environment should be based on the principle of party autonomy. It was also agreed that future work was needed to determine the scope and content of a possible set of legal rules to be applied in the absence of an agreement by the parties (e.g., a bilateral agreement or general rules set forth by a network operator). While the view

was expressed that in many legal systems such a conclusion would result from the interpretation of traditional legal rules and that there existed therefore no need to establish new rules, it was observed that such interpretation of traditional rules might not be a solution available in all countries. It was agreed that particular consideration in this respect should be given to the fact that EDI users needed certainty as to applicable legal rules and that the need to rely on interpretation of traditional rules on paper-based transactions might not be satisfactory in that respect. It was also agreed that, when considering the scope and content of possible rules, attention should be given to providing the possibility for computers to express consent and to the obligation for an accepting party to send notice of its acceptance to the offeror.

2. Time and place of formation

87. It was noted that when dealing with the issue of time and place of formation of contracts in the context of EDI relationships, two solutions were most commonly found in legal systems (see A/CN.9/333, paras. 72 to 74): the receipt rule and the dispatch rule. It was recalled that according to the dispatch rule a contract was formed at the moment when the declaration of acceptance of an offer was sent by the offeree to the offeror. According to the receipt rule, a contract was formed at the moment when the acceptance by the offeree was received by the offeror. That question was one of the important issues that could be settled in a communication agreement, in the absence of mandatory provisions of statutory law. As an example of such a contractual provision, article 9.2 of the "TEDIS European Model EDI Agreement" prepared by the Commission of the European Communities (May 1991) read as follows:

> "Unless otherwise agreed, a contract made by EDI will be considered to be concluded at the time and the place where the EDI message constituting the acceptance of an offer is made available to the information system of the receiver."

88. It was recalled that the TEDIS Study on the Formation of Contracts (see A/CN.9/WG.IV/WP.53, para. 68) contained a chapter on the issues of time and place of formation of contracts. The conclusions of that study were that the receipt rule should be promoted as particularly suitable for EDI. It was observed that the transmission of EDI messages might be initiated in different places, such as a place of business of the sender, or the place where the sender held its computers, or any place from where the sender might operate, for example, by means of a portable computer. It was also observed that, during the transmission process, particularly where third-party service providers were involved, EDI messages might travel through places that were irrelevant to the underlying commercial contract. It was thus submitted that only the place where the message had been placed at the disposal of the recipient was sufficiently predictable to provide legal certainty, particularly as to the place of formation of a contract. It was also mentioned that the receipt rule was in line with article 18(2) of the United Nations Sales Convention, with the draft Principles for International Commercial Contracts prepared by the International Institute for the Unification of Private Law (UNIDROIT) and with national legislation in a number of States.

89. After discussion, the Working Group was agreed that any rules on the time and place of the formation of contracts in an electronic environment should be based on the principle of party autonomy. As to the definition of a possible rule to be applied in the absence of a prior agreement between the parties, it

was agreed that the main purpose of such a rule should be to provide certainty to all parties involved. Some support was expressed in favour of the theory of receipt. It was agreed that future work would be needed to determine the content of a rule on the time and place of formation of contracts. It was noted that devising the rule might be difficult in view of the possible involvement of several commercial parties and several third-party service providers, each of which might operate computers from different places. It was agreed that exceptions would probably need to be made to the receipt rule for those cases where the place of receipt was not objectively determinable by the parties at the moment when the contract was formed and for those cases where the place of receipt might have no relevance to the underlying transaction. It was suggested that the place of formation of a contract might be determined by reference to an objective event so as to avoid being linked inappropriately to, for example, the place where computers were located.

3. General conditions

90. It was recalled that the main problem regarding general conditions in a contract was to know to what extent they could be asserted by one party against the other contracting party (see A/CN.9/333, paras. 65 to 68). In many countries, the courts would consider whether it could reasonably be inferred from the context that the party against whom general conditions were asserted had had an opportunity to be informed of their contents or whether it could be assumed that the party had expressly or implicitly agreed not to oppose all or part of their application.

91. It was also recalled that EDI was not, at least at the current time, technically equipped, or even intended, to transmit all the legal terms of the general conditions that were printed on the backs of purchase orders, acknowledgements and other paper documents traditionally used by trading partners. EDI techniques currently in use were designed to transmit standardized, coded messages with a specific syntax, and general conditions could typically not be included in such messages. A solution to that difficulty was to incorporate the general conditions in the communication agreement concluded between the trading partners. However, some model agreements had expressly excluded coverage of general conditions, based on the principle expressed in article 1 of the UNCID Rules (see A/CN.9/WG.IV/WP.53, Annex) that the interchange agreement should relate only to the interchange of data, and not to the substance of the transfer, which might involve consideration of various underlying commercial or contractual obligations of the parties. It was also noted that in the case of open networks that offered the service of "electronic yellow pages", the rights of the parties to the contracts formed might be governed by statutory rules or by conditions established by the network operator.

92. In light of the above, emphasis was placed on the need to draw a clear distinction between the conditions governing communication through an EDI network and the general conditions applicable to the contract formed between the parties through the use of EDI messages. At the same time, reference was made to the possibility that in some cases conditions of the former type, i.e., those governing the use of EDI communications facilities, might affect substantively the rights and the obligations of the parties under the underlying contract (e.g., with respect to issues such as offer and acceptance).

93. Various methods were mentioned of ensuring the applicability of general conditions to the contract formed by EDI messages, while not detracting from the cost effectiveness of EDI. One suggestion was that general conditions

might be covered by a master agreement distinct from the communication agreement, for example a master supply agreement for the sale of goods. Another suggestion was that the EDI message itself could include a reference to general conditions, an approach analogous to one traditionally used in contractual practice. Yet another suggestion was that such references might be tied to a practice such as that reported to be used in one country, where general conditions of sale were published in the official journal or deposited with a governmental authority, and thereby made available for incorporation by reference in individual sales contracts. An electronic analogue of such an approach could be the establishment of data bases in which general conditions could be stored and made electronically accessible, thus facilitating incorporation of the general conditions by way of references in EDI messages. It was suggested that such a database or some other method of transmitting general conditions might be a service that could be offered by value-added networks.

94. A number of general observations were made as to the techniques that had been discussed for the transmission and incorporation of general conditions. These included in particular that the techniques used would have to ensure that the parties were aware of, or at least had the opportunity to familiarize themselves with, the content of the general conditions, that the principle of freedom of contract should be maintained, that the solutions needed to be simple so as not to aggravate "battle of the forms" problems through the use of EDI, and that, at least until such time as technical obstacles to the use of standardized messages for the transmission of general conditions had been overcome, to some extent a hybrid system might have to be envisaged in which paper documents remained the repository of general conditions.

95. While the observation was made that the question of general conditions was a source of some uncertainty as regards the wider use of EDI and that consequently the development of rules in that area might at some future time be usefully considered, the Working Group took the view, subject to further developments in practice, that the question of general conditions was primarily a matter of the rights and obligations agreed upon by the parties. It was also noted that questions related to general conditions had been touched upon in other legal instruments, in particular the United Nations Convention on Contracts for the International Sale of Goods and the draft Principles for International Commercial Contracts prepared by the International Institute for the Unification of Private Law (UNIDROIT).

F. Liability for failure or error in communication

96. The Working Group noted that legal consequences of a failure or error in EDI communications were sometimes addressed in agreements between parties involved, but that practice in that respect was not well developed and that clauses of that type varied in their scope and in the type of solutions adopted. There was general agreement in the Working Group that statutory provisions on both issues were needed, either as fall-back solutions when agreements by parties did not resolve a question or as statutory provisions protecting legitimate interests of parties. It was pointed out that it might be advisable to define such terms as "damages", "direct damages" and "indirect damages", and to examine further what kind of damages should be addressed in those statutory provisions.

1. Liability and risk of a party

97. The Working Group engaged in a discussion of two related questions that might arise when a message was delayed or not transmitted properly. One question concerned the liability for damages of a party who caused a failure or error in communication. The other question was which party was to bear the risk of loss resulting from a failure or error in communication. Views were expressed that in devising a statutory provision on those questions, appropriate weight should be given to the principle of freedom of contract.

98. A suggestion was made that the question of liability and risk might be addressed by a provision along the following lines:

> "Subject to the agreed procedures for authentication or verification, the risk and liability for any faulty transmission and resulting damage rests with the sender".

By way of explanation, it was added that the purpose of the opening phrase in the suggested provision was to make it clear that the provision addressed the situation when security procedures had been agreed upon and the recipient of the message observed those procedures.

99. Under one view, the suggested text presented a suitable basis for further discussions. Under another view the suggested rule was too one-sided in emphasizing the liability of the sender, since loss could be caused not only by negligence of the sender, but instead by negligence of the recipient, by contributory negligence of both of them, or by a third person. It was suggested that the suggested rule would have to be expanded in order to express more clearly the cases in which the liability should not be on the sender. It was also stated that the suggested provision, while possibly suitable when the sender and the recipient were communicating through a direct link without any value-added intervention of a communication network, was not sufficiently adapted to a situation when the parties communicated through a value-added communication network.

100. Several interventions were directed at the need to distinguish the question of liability for loss from the question of which party bore the risk of loss where nobody was liable for the loss. It was pointed out that, while the suggested rule might present a suitable approach to the question of risk, a different approach was needed for a provision on liability. In this light, a provision on liability might be broadly modelled on the approach adopted in article 12 of the draft TEDIS Agreement as reproduced in paragraph 103 of document A/CN.9/350:

> "Each party shall be liable for any direct damage arising from or as a result of any deliberate breach of this agreement or any failure, delay or error in sending, receiving or acting on any message. Neither party shall be liable to the other for any incidental or consequential damage arising from or as a result of any such breach, failure, delay or error.
>
> The obligations of each party imposed by this EDI agreement shall be suspended during the time and to the extent that a party is prevented from or delayed in complying with that obligation by force majeure.
>
> Upon becoming aware of any circumstance resulting in failure, delay or error, each party shall immediately inform the other party(ies) hereto and use their best endeavours to communicate by alternative means".

101. Also mentioned as a possible model for a provision on liability was article 16 of the draft SITPROSA Agreement as reproduced in paragraph 103 of document A/CN.9/350:

> "16.1 The risk and liability for any faulty transmission and the resulting damages rests with the Sender:
>
> a. subject to the exceptions described in clause 16.2; and
>
> b. subject to the condition that the Sender will not be liable for any consequential damages other than those for which he would be liable in the case of a breach of contract in terms of the Main Contract or which have been specifically agreed to.
>
> 16.2 Although the Sender is responsible and liable for the completeness and accuracy of the TDM [Trade Data Message], the Sender will not be liable for the consequences arising from reliance on a TDM where:
>
> a. the error is reasonably obvious and should have been detected by the Recipient;
>
> b. the agreed procedures for authentication or verification have not been complied with".

102. It was noted that the issue of liability was closely linked to the observance of commercially reasonable procedures for verification and security of communication. It was said that any statutory rule that might be prepared by the Commission should be more specific concerning those procedures. Articles 6, 7 and 8 of UNCID Rules were mentioned as citing the duty to observe such commercially reasonable procedures. It was further noted that a statutory provision might have to be refined depending on the author of a particular procedure and how the procedure meshed with the method of operation of the communication system.

103. It was observed that the content of a provision might depend on the communication method envisaged. The content of a provision might also depend on whether loss occurred between parties who communicated frequently on the basis of an agreement for the interchange of messages or whether loss occurred between parties who did not communicate regularly.

2. Liability of a third party providing communications services

104. The Working Group discussed the liability of EDI network operators, who might cause loss by improper or untimely transmission of, for example, a contract offer, payment order, notice to release goods, or a notice that goods were damaged. In addition, a network operator might cause damage by failing to perform or by incorrect performance of value-added services that the network had undertaken to perform.

105. The Working Group considered the liability of the various types of third-party operators of EDI networks to their users. One type were third parties who only transmitted messages without providing additional value-added services (passive networks). Another type were third parties who provided value-added services such as authentication, verification, archiving, recording or copying. A further type, referred to also as central data managers, were third parties whose management of the flow of information was essential for the functioning of a closed EDI network so that each party who wished to join the network had to agree to conduct the transactions through

the central data manager. Central data managers could perform, in addition to one or more value-added EDI services (such as authentication, verification, archiving, recording or copying), also other functions such as coordinating and collating the flow of data or netting outstanding claims among participating parties.

106. It was noted that in the context of the TEDIS programme an initial analysis was under way of liability issues concerning two types of operators: (a) network operators whose services were essentially limited to carrying data and (b) operators who intervened in EDI in order to store, authenticate or verify data.

107. It was observed that, in practice, the liability of network operators was to a large measure restricted. In the case of network operators that had a public status (e.g., those that were state-owned, enjoyed a degree of monopoly, or were of special importance to the national economy), the restriction or exclusion of liability was often established in the law or regulation governing the functioning of the network. The responsibility of passive carriers of data (such as telephone, telex or facsimile networks) in particular was low or excluded. In the case of networks that had no such public status, liability restrictions were found in contracts with users of the communications services. In addition to excluding or placing financial limits on liability, liability restrictions generally concerned the basis of liability and the burden of proof. Liability might be restricted also through rules determining that the operator was liable only for direct loss or loss that the operator could reasonably foresee; for example, when a payment order or an acceptance of a contract offer was not transmitted properly, the liablity might be limited to the fee paid for the transmission and to the interest lost because payment was made late.

108. It was noted that in devising liability rules it would have to be borne in mind that an EDI message might have to travel through networks of various operators, including operators that were not in a contractual relationship with the sender or the addressee of the message, and that sometimes the user of the communication service did not know through which networks the message would travel.

109. Various interventions were made concerning the need to establish statutory provisions on liability, and concerning the implications such provisions might have for the development and commercial viability of EDI networks. It was stated that mandatory liability rules, comparable to rules governing liability arising from other commercial activities, were necessary to foster observance of proper procedures and technical standards in EDI. It was also stated that liability rules would by necessity be reflected in the costs of network operators, and that a significant increase in those costs would hinder or impede commercial development of EDI. The possibility of insuring liability was emphasized as an important criterion in assessing the feasibility of proposed liability rules. Examples were given of attempts to establish value-added communications services which eventually failed because it was difficult to assess the extent of the possible liability risk and that, consequently, the liability risk was not insurable at a commercially acceptable insurance premium.

110. It was observed that an operator might offer different fees for a given service, depending on the level of liability accepted by the operator. It was said that it might be acceptable to allow a broad freedom of contract in excluding liability as long as the user had a reasonable choice to pay a

higher fee for a higher level of liability. It was added, however, that such freedom of contract was acceptable only if competition existed among network operators.

111. It was observed that, with the increased use of EDI, the likelihood of an error or fraud remaining undetected would diminish. For example, when a given transaction was implemented by a series of messages (e.g., purchase order, functional acknowledgement of the order, acceptance of offer, functional acknowledgement of the acceptance, shipment order, instruction to the carrier), electronic security measures were likely to alert the users in the event of alteration of data at a particular segment of the message chain.

112. After discussion, there was general agreement in the Working Group that in principle the users and the networks should be free to agree on the level of liability of the network. This freedom, however, should be limited by a mandatory provision ensuring that the liability of the network was not excluded or set at an unreasonably low level.

113. The Working Group reviewed the following types of value-added communications services which might give rise to the liability of a network operator: authentication, verification, archiving, recording and copying.

114. As to authentication and verification, it was noted that various methods were in use and that those methods provided different levels of security to the EDI users. The methods ranged from a technically simple verification of the address of the owner of the computer that had sent or received a message to sophisticated "digital signatures". Some of those methods were designed to verify only the source of the message, while others could verify both the source of the message as well as whether the message received was identical to the message sent. It was pointed out that when the user was promised that a particular method of authentication would be used, the user should be entitled to hold the network responsible if the agreed method was not used. It was also pointed out that it was in the public interest that authentication and verification procedures were used since authenticated and verified messages could be relied upon by the user in its dealings with tax, customs or other authorities.

115. It was noted that the nature of the duties and liabilities of the network attendant to recording and archiving functions depended on the extent and purpose of those functions. The network's tasks might be limited to recording and maintaining selected data relating to messages (e.g., the date and hour of the dispatch or receipt of a message, length of message and addressee), or the network might archive the full content of the messages. The period of time during which information would have to be preserved might vary depending on the needs of the user and the cost involved. For certain types of records, the period of time during which they had to be archived, and security measures that had to be used, were governed by mandatory provisions of national law. A suggestion was made that, in connection with preparing liablity rules, it might be useful to recommend harmonization of national rules governing the length of time during which certain records were to be kept. The prevailing view, however, was that such national rules were not limited to records kept in computer-readable form and that harmonization of those rules was beyond the scope of rules on EDI. Particular mention was made of cases where the recorded information related to a right of a person and a change in the record was needed for the transfer of that right (e.g., in the case of an "electronic bill of lading" (see below, paras. 119 to 124)). It was said that in such cases the breach of duties of the network could have serious consequences for the parties to the underlying transaction. An observation was made that the

transferee of the right recorded by the network might obtain certain rights against the network even in the absence of a contract between the transferee and the network.

116. Another service of network that might give rise to liability consisted in providing copies of records of information to certain persons or users. Two aspects of this service were mentioned. One aspect was a duty to provide a copy in accordance with the conditions set out in the contract between the user and the network. Another aspect was a duty to provide a copy to a court or similar organ that was entitled by law to be provided with certain information.

117. Various observations were made with regard to any statutory liability provision that might be prepared by the Commission. It was suggested that it would be desirable to elaborate one set of rules that would govern various types of services performed by the EDI network operator. One possible approach along those lines would be to base the liability provision on the principle that the obligation of the network was to provide, to the best of its ability, the means to carry out the service ("obligation of means"). Another possible approach would base the provision on the principle that the network guaranteed the performance of the service ("obligation of result"). It was also suggested that the network should not be able to exclude its liability for negligence. Liability based on negligence could be expressed by setting out positive duties owed by the network to the user and by providing that the network was liable if it was in breach of such a duty. Alternatively, liability could be expressed by stating that the network was liable if it failed to take all the measures that could reasonably be required to avoid the damage. As to the damages, suggestions were made that the network should be able to exclude liability for indirect and unforeseeable damages. The view was also expressed that, where several networks were involved in performing a service, the statutory provision should identify the network or networks that were liable to the user.

118. Other factors on which it was suggested that the liability of the network operator might depend included whether it was the operator of the network or another party who constructed the communications system, whether it was the user or the network operator who decided that a particular communications system would be used, whether the network operator was the only party in control of the communications system, whether the communications system was offered to the user with or without a possibility to adapt the system to particular needs of the user, and whether the user fulfilled its duty to observe agreed security measures.

G. Documents of title and securities

119. The discussion on the topic of negotiability of documents of title in an EDI environment focused on maritime bills of lading. It was noted that, while technical and contractual solutions relating to electronic transferring of bills of lading and similar documents of title had been found, unresolved practical difficulties remained in some countries with regard to the use of EDI for the purpose of "dematerialized securities trading", i.e., transferring marketable securities such as stocks, shares or bonds.

120. Explanations were given regarding the transfer of title to goods in transit under the "CMI Rules for Electronic Bills of Lading", adopted by the Comité Maritime International (CMI) in 1990. Those Rules applied if the participating parties so agreed. It was pointed out that an electronic bill

of lading, in order to be an attractive alternative to a paper-based bill of lading, had to fulfil in particular the following functions: to evidence the contract of carriage, to evidence receipt of goods, to provide a right to control goods and the possibility of transferring that right, to secure reliable information concerning the description of the goods, to allow verification by interested third parties (e.g., insurers) of information concerning goods, and to allow establishment of a security interest in the goods.

121. The Working Group heard an explanation of steps involved in establishing and transferring an electronic bill of lading under the CMI Rules. First, the shipper and the carrier had to agree that they would communicate electronically, that an electronic bill of lading would be used instead of a paper-based one, and that the CMI Rules would apply. Next, after the carrier had confirmed the shipper's "booking note" specifying the shipper's requirements and after the shipper had delivered the goods to the carrier, the carrier would issue a receipt for the goods. The receipt of the goods would contain the description of the quantity, quality and condition of the goods. Together with the receipt, the carrier would transfer to the shipper a secret code ("private key") to be used for securing the authenticity and integrity of any future instruction to the carrier regarding the goods. The private key could be any technically appropriate code, such as a combination of numbers or letters that the parties might agree on. The shipper would then confirm to the carrier agreement with the description of the goods in the receipt. The CMI Rules provided that the shipper, by virtue of being the holder of the private key, had the "right of control and transfer" over goods, i.e., the right to claim delivery of the goods and the right to nominate a consignee. For the transfer of the right to control and transfer the following steps were necessary: a notification from the current holder of the private key to the carrier of the intention to transfer to another person the right of control and transfer; the carrier's confirmation of that notification; the carrier's transmission to the proposed new holder of the description of the goods; notification by the proposed new holder to the carrier of acceptance of the description of the goods; and cancellation by the carrier of the current private key and issuance of a new private key to the new holder. The new holder of the private key could then transfer its rights regarding the goods to a new holder following the same steps. At the port of destination, the carrier was to deliver the goods in accordance with the delivery instructions as verified by the private key.

122. It was noted that mere possession of the currently valid private key was not sufficient to transfer the right of control and transfer. The carrier, in communicating with the holder of the key, would also verify whether the instruction for transfer was given by the person identified by the previous holder. Such verification of identity would be done by electronic means of authentication in addition to the private key.

123. It was noted that the CMI Rules did not make it possible for two persons to have simultaneous control over goods, one as the owner of the goods and the other as the holder of the security interest in the goods. If a security interest was to be established in favour of a person (e.g., a bank), that person would have to be made the single holder of the right of control and transfer over the goods. A suggestion was made that consideration should be given to a possibility that an owner of goods, while retaining a degree of control over the goods, would establish through EDI a security interest in the goods in favour of a creditor. A related suggestion was to explore the possibility of an electronic transfer of a security interest in goods independently from the transfer of ownership over goods.

124. The Working Group was in agreement that there was a need to review existing statutory rules on documents of title with a view to ascertaining whether new statutory law was needed to enable or facilitate the use of documents of title in an EDI environment. It was pointed out that such future work should be carried out in cooperation with other organizations active on the subject.

H. Communication

125. The Working Group noted that the legal issues of communication, such as the use of functional acknowledgements, have been addressed in the UNCID Rules and in most communication agreements or user manuals prepared for potential EDI users. It agreed to include this subject on the list of possible future work.

I. Applicable law and related issues

126. The Working Group was agreed that, in the context of the preparation of a future instrument on the legal issues of EDI, attention should be given by the Commission to the questions of the law applicable to EDI relationships. In this regard, it was suggested that the rule should be established that parties to an EDI relationship would have complete freedom to determine the law applicable to that relationship. The view was expressed, however, that party autonomy in this regard should be limited by consideration of international public order so that a choice-of-law clause should not be used as a means of avoiding application of fundamental legal principles. Another suggestion was to establish a conflict-of-laws rule providing that, in the absence of a contrary agreement, one national law would be applicable to the possibly different segments of an EDI transaction and providing a method for the determination of that law.

127. It was further suggested that rules on EDI should facilitate access of parties to arbitration. Im particular, consideration should be given to EDI procedures for concluding arbitration agreements and to statutory provisions supporting the validity of arbitration agreements.

128. The Working Group was agreed that future work on those issues should develop using the above suggestions as a basis for discussion.

IV. RECOMMENDATION FOR FUTURE WORK

129. The Working Group was agreed that any future work by the Commission in the field should be aimed at facilitating the increased use of EDI. The Working Group was also agreed that its deliberations had made it clear that there existed a need for legal norms to be developed in the field of EDI. Support was expressed in favour of suggestions that the review of legal issues arising out of the increased use of EDI had also demonstrated that among those issues some would most appropriately be dealt with in the form of statutory provisions. Examples of such issues included: formation of contracts; risk and liability of commercial partners and third-party service providers involved in EDI relationships; extended definitions of "writing" and "original" to be used in an EDI environment; and issues of negotiability and documents of title.

130. At the same time, it was also suggested that other issues arising from the use of EDI were not ready for consideration in the context of statutory provisions and would require further study or further technical or commercial developments. While it was generally felt that it was desirable to seek the high degree of legal certainty and harmonization provided by the detailed provisions of a uniform law, it was also felt that care should be taken to preserve a flexible approach to some issues where legislative action might be premature or inappropriate. As an example of such an issue, it was stated that it might be fruitless to attempt providing legislative unification of rules on evidence applicable to EDI messaging. It was stated that, on some such issues, the Commission might deem appropriate to undertake the preparation of legal rules, legal principles or recommendations.

131. After discussion, the Working Group decided that its recommendation to the Commission would be to undertake the preparation of legal norms and rules on the use of EDI in international trade. It was agreed that such norms and rules should be sufficiently detailed to provide practical guidance to EDI users as well as to national legislators and regulatory authorities. It was also agreed that the Commission, while it should aim at providing the greatest possible degree of certainty and harmonization, should not, at this stage, make a decision as to the final form in which those norms and rules would be expressed.

132. As regards the possible preparation of a standard communication agreement for worldwide use in international trade, the Working Group was agreed that, at least currently, it was not necessary for the Commission to develop a standard communication agreement (see above, para. 27). However, it was noted that in line with the flexible approach recommended to the Commission concerning the form of the final instrument, situations might arise where the preparation of model contractual clauses would be regarded as an appropriate way of addressing specific issues.

133. The Working Group reaffirmed the need for close cooperation between all international organizations active in the field. It was agreed that the Commission, in view of its universal membership and general mandate as the core legal body of the United Nations system in the field of international trade law, should play a particularly active role in that respect. In that connection, it was recalled that the mandate conferred on the Commission by the General Assembly was to "further the progressive harmonization and unification of the law of international trade by:

(a) Co-ordinating the work of organizations active in this field and encouraging cooperation among them;

(b) Promoting wider participation in existing international conventions and wider acceptance of existing model and uniform laws;

(c) Preparing or promoting the adoption of new international conventions, model laws and uniform laws and promoting the codification and wider acceptance of international trade terms, provisions, customs and practices, in collaboration, where appropriate, with the organizations operating in this field;

(d) Promoting ways and means of ensuring a uniform interpretation and application of international conventions and uniform laws in the field of the law of international trade;

(e) Collecting and disseminating information on national legislation and modern legal developments, including case law, in the field of the law of international trade;

(f) Establishing and maintaining a close collaboration with the United Nations Conference on Trade and Development;

(g) Maintaining liaison with other United Nations organs and specialized agencies concerned with international trade;

(h) Taking any other action it may deem useful to fulfil its functions." 14/

134. It was also agreed that the Secretariat should continue to monitor legal developments in other organizations such as the Economic Commission for Europe, the European Communities and the International Chamber of Commerce, facilitate the exchange of relevant documents between the Commission and those organizations and report to the Commission and its relevant Working Groups on the work accomplished within those organizations.

14/ General Assembly resolution 2205 (XXI), sect. II, para. 8 [Yearbook 1968-1970, part one, chap. II, sect. E].